June 25, 2001

Dear Colleague:

You are cordially invited to attend the 2001 Contractor's Meeting for the Air Force Office of Scientific Research program in Turbulence and Rotating Flows. This year's meeting will be held in Seattle, Washington, August 13-14 at the Crowne Plaza Hotel. A preliminary agenda is included. This two-day meeting will highlight recent progress in the AFOSR Turbulence and Rotating Flows program and will also provide an opportunity for interaction between university, laboratory and industry representatives. A book of abstracts for all grants and contracts in this program will be prepared and available to attendees at the meeting.

Registration forms should be mailed to Raymond Herrera, AFOSR/NI, 801 N. Randolph St., Arlington, VA 22203-1977 or faxed to 703-696-5233. Registration forms are attached. You may also register on-line at http://afosr.sciencewise.com .

This meeting is open to all industry, laboratory and university representatives with an interest in this program. I encourage you to pass this invitation on to others in your organization, who may be interested in attending.

Please do not hesitate to contact Raymond at 703-696-7317 or myself at 703-696-6961, if you have any questions. I hope you will be able to attend and I look forward to seeing you at the meeting.

Sincerely,

Thomas J. Beutner
Program Manager
Turbulence and Rotating Flows

AGENDA

Air Force Office of Scientific Research

Contractors' Meeting in Turbulence & Rotating Flows

Crowne Plaza Hotel, Seattle, WA ♦ August 13-14, 2001

Monday, August 13, 2001

7:00-8:00	On-Site Registration, Continental Breakfast
8:00-8:30	Opening Remarks, *T. Beutner, AFOSR*
8:30-8:50	**Turbulence & Transition** Chair, Dr. Don Rizzetta, AFRL, Air Vehicles Directorate Structure-Based Turbulence Modeling, *W.C. Reynolds and S.C. Kassinos, Stanford*
8:50-9:10	Turbulence Modeling Using Turbulent Potentials, *B. Perot, Univ. of Massachusetts*
9:10-9:30	Large Eddy Simulation of Complex Flows Including Approximate Boundary Conditions *P. Moin, Stanford*
9:30-9:50	A New Approach for Prediction of Aircraft Spin *K. Squires, Arizona State University*
9:50-10:10	Optimal Large Eddy Simulation of Turbulence *R. Moser, S. Balachandar, R. Adrian, UIUC*
10:10-10:40	**BREAK**
10:40-11:00	Influence of High-Amplitude Noise on Boundary Layer Transition to Turbulence *R. Radeztsky & W. Saric, Arizona State University*
11:00-11:20	***New Starts*** Modeling of Pressure-Strain Correlation, Subgrid Stress and Turbulent Transport, An Unified Approach *S. Girimaji, Texas A&M*
11:20-11:40	Impact of External Wall & Pressure Gradient Conditions on Overlap-Region Parameters in High Reynolds Number Boundary Layers, *H. Nagib, Illinois Institute of Technology*
11:40-12:10	Invited Talk: "Turbulence Modeling in the Real World" *P. Spallart, The Boeing Company*
12:15-13:30	**LUNCH—*Group Lunch in Hotel***
13:30-13:50	**Aerooptics** Chair, Dr. Aaron Byerley, US Air Force Academy Three-Dimensional Structure of Turbulent Scalar Fields with Applications in Aerooptics *P. Dimotakis, Cal. Tech.*
13:50-14:10	Fluid-Optic Interactions *E. J. Jumper and E.J. Fitzgerald, Notre Dame*
14:10-14:30	Shockwave and Boundary Layer Control for Aero-Optic Applications *A. Smits, Princeton Univ.*
14:30-15:00	Closing Remarks & Business Meeting, *T. Beutner, AFOSR*
15:00-15:15	**BREAK**
15:15-17:00	**Breakout Discussion Groups:** Turbulence & Transition—*Turbulence Physics, Modeling, DNS, LES, RANS* Flow Control—*Actuators, Applications, Modeling, Coupling Mechanisms* Aero-Optics—*Far-Field & Near-Field, Modeling, Measurement, Correction* Turbomachinery—*HCF, Flow Control, Heat Transfer, Secondary Flows* Ad Hoc Groups—Microflows, Interdisciplinary Topics, Diagnostics
18:00	**DINNER—*Group Dinner in Hotel***

AGENDA

Tuesday, August 14, 2001

7:00-8:00	On-Site Registration, Continental Breakfast
8:00-8:10	Opening Remarks, T. Beutner, AFOSR
	Active Flow Control & Simulations Chair, Dr. William Copenhaver, AFRL Propulsion Directorate
8:10-8:30	UAV Aeroelastic Control Using Redundant Micro-Actuators *I. Kroo, J. Eaton, F. Prinz, Stanford University*
8:30-8:50	Computational Fluid Dynamics *M. Visbal,D. Rizzetta AFRL/VA*
8:50-9:10	The Control of Separation From Curved Surfaces and Blunt Trailing Edges *I. Wygnanski, U. of Arizona*
9:10-9:30	Numerical Investigation of Separation Control from Curved & Blunt Trailing Edges Using DNS & LES *H. Fasel, University of Arizona*
9:30-9:50	A Continued Computational Investigation of MEMS—Hybrid Surfaces *D. Goldstein, University of Texas, Austin*
9:50-10:10	**BREAK**
	New Starts
10:10-10:30	Fluidic Virtual Aerosurfaces for Flow Control Applications *A. Glezer, Georgia Institute Of Technology*
10:30-10:45	Synthetic Jet Actuation—Modeling, Actuator Development and Application to Separation Control *O. Redionitis, Texas A&M*
	Turbomachinery Flows and Heat Transfer Chair, Dr. Richard Rivir, AFRL, Propulsion Directorate
10:45-11:05	Ultra-High Work, High Efficiency Turbines for UAVs *R. Sondergaard, AFRL/PR, J. Bons, AFIT*
11:05-11:25	Aerospace Turbomachinery Flow Physics *C.S. Tan, E.M. Greitzer, A. Epstein, G.R. Guenette, , J.L. Kerrebrock, J.D. Paduano, MIT*
11:25-11:45	Measurements and Modeling of Turbulence and Complex Flow Phenomena in Multi-Stage, Axial Turbomachines, *J. Katz & C. Meneveau, Johns Hopkins University*
11:45-12:05	Turbomachinery Fluid Mechanics *W. Copenhaver, Air Force Research Laboratory, AFRL/PR*
12:10-13:25	**LUNCH—Group Lunch in Hotel**
13:25-13:45	Turbine Aerothermal Research *R. Rivir, AFRL/PR*
13:45-14:05	Large Eddy Simulation for Heat Transfer Prediction under Free-Stream Turbulence *S. Lele, Stanford University*
14:05-14:25	High Performance Woven Mesh Heat Exchange *R. Wirtz, University of Nevada, Reno*
	New starts
14:25-14:45	High-Temperature Optical Fiber Sensor Instrumentation for Gas Flow Monitoring in Gas Turbine Engines, *A. Wang, Virginia Polytechnic Institute*
14:45-15:05	**BREAK**
15:10-16:30	Report Out from Breakout Groups (10-15 minutes each) and General Discussion
16:30-17:00	Concluding Remarks, T. Beutner, AFOSR
17:00	Adjourn

General Information

Meeting Location

Crowne Plaza Hotel
1113 6th Avenue
Seattle, WA
206-464-1980

The Crowne Plaza is conveniently located in the heart of Seattle's downtown business, financial, and entertainment district. For further information, view their web site at www.crowneplazaseattle.com

Meeting Rooms

The meeting will take place at the Crowne Plaza Hotel's Glacier and Yellowstone rooms.

Registration

The cost of registration is $175.00 and includes some meals. Attendees will also receive a copy of the book of abstracts for all projects**.**

Deadline for registration is 3 August 2001.

Register on-line at http://afosr.sciencewise.com or by filling out the registration form included in this packet and fax to 703-696-5233. Registrants may pay at the conference site (cash or check only) or by mailing a check. **Please make checks payable to: AFOSR Protocol**.

AFOSR/NI Protocol
801 N Randolph St., Suite 732
Arlington, VA 22203-1977

Conference Audio Visual Support

A PC computer with a LCD projector, overhead projector, and an audio-visual professional will be available on-site. To ensure that all briefings are compatible, please contact Ms. Kim Kelly at 703-696-7305 or e-mail at kim.kelly@afosr.af.mil by 20 July 2001. Please plan to bring back-up transparencies in the event of equipment difficulties with electronic briefings.

Lodging

A limited number of rooms have been blocked at the Crowne Plaza. Please make reservations on or before **13 July 2001**. Request the rooms blocked for AFOSR (a number of government rooms are available for federal employees). Check in time is after 1600 and check out is 1200. Crowne Plaza Reservations: **206-464-1980.**

Meals

Conference meals will consist of two continental breakfasts, two lunches, four breaks, and one dinner. For special dietary needs, please contact Ms. Kim Kelly at 703-696-7305 by August 3, 2001.

Emergency Contact Phone Number

In case of an emergency, attendees can be contacted through cellular phones that will be manned by AFOSR Protocol at 703-989-0174.

Transportation from Airport

The Crowne Plaza is located 14 miles form the Seattle-Tacoma International Airport. Direct bus services are available to and from the airport via the Grayline Airport Shuttle, which stops every half-hour at the hotel. Charges for the shuttle are $8.50 one way and $14.00 round trip.

Driving Directions

- From Seattle-Tacoma International Airport (SEA) drive **SOUTH** on 170th Street and go **EAST** for 500 feet. Turn **LEFT** on ramp and go **NORTH** for 600 feet. Continue on **NORTH Exit Drive** and go **NORTH 0.7 miles.** Continue on ramp at sign reading **WA-518 E** to Seattle/Tacoma and **I-5/I-405** and go **EAST** for 0.4 miles. Bear right on **WA-518** and go east for 1 mile. **Exit WA-518** via ramp at sign reading **I-5 NORTH** to Seattle, and go Northeast for 0.5 miles.
- **Exit I-5** and go **NORTH** for 11 miles, Exit I-5 at sign reading **EXIT 166 Olive Way** and go **NORTH** for 900 feet. Turn **RIGHT** on **Olive Way** and go Northeast for 1000 feet. Turn **LEFT** on **E DENNY WAY** and go **WEST** for 0.2 miles. Turn **LEFT** on **STEWART ST** and go Southwest for 120 feet, Turn **LEFT** on **YALE AVE** and go Southeast for 400 feet. Turn **RIGHT** on ramp at sign reading **I-5 SOUTH,** and go South for 600 feet.

Parking

Parking at the hotel is limited and priority will be given to overnight guests. The current cost is $22.00 per day and is subject to change. Additional parking facilities are available nearby at a comparable charge. Please note that they are unable to accept oversized vehicles due to space limitations.

Reminder

The cost of registration is **$175.00** and includes some meals. Deadline for registration is **3 August 2001**. Register on-line or by filling out the form in this packet. Please make checks payable to **AFOSR Protocol**. Registrants may pay at the meeting site or mail check to:

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Arlington, VA 22203-1977